

Notice of Allowability

Application No.

10/531,042

Examiner

Kamran Afshar, 571-272-7796

Applicant(s)

KENNEDY ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/29/2006.
2. ☒ The allowed claim(s) is/are 1, 3-15, 18-20, 24-28, 30 and 34-49.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mark C. Comtois Reg. No.: 46,285 on 9/29/2006.

The application has been amended as follows:

In The Claim(s):

1. (Currently Amended) In a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, and having a mobile-appliance location determining system overlay for determining the location of the mobile-appliance in the coverage area, a method of collecting test and measurement data, comprising the steps of:

(a) selecting one of the plural base stations to search for a transmitting mobile-appliance;

(b) at the selected one of the plural base stations, searching for a transmitting mobile-appliance by scanning frequency, time slot and code as a function of a set of operating parameters of the wireless communication system;

(c) once a transmitting mobile appliance is detected, determining if the quality of the signal reception from the transmitting mobile appliance is acceptable;

(d) selecting a set of the plural base stations in the vicinity of the transmitting mobile-appliance;

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(e) at ones of the plural base stations in the selected set, measuring the signal received from the transmitting mobile-appliance; and,

(f) storing the measured signal data.

2. (Canceled)

3. (Previously Presented) The method of claim 1 wherein the step of determining the signal quality is a function of at least one of a received signal strength, a bit error rate or a frame error rate.

4. (Previously Presented) The method of claim 1 wherein the step of measuring at one of the plural base stations in the selected set includes measuring the carrier to interference ratio and received signal strength.

5. (Previously Presented) The method of claim 1 wherein the step of measuring at one of the plural base stations in the selected set includes the steps of obtaining a signal sample from the transmitting mobile-appliance.

6. (Previously Presented) The method of claim 1, wherein the step of measuring at one of the plural base stations in the selected set includes the step of extracting information in the transmitting mobile-appliance's signal.

7. (Previously Presented) The method of Claim 6 wherein the step of extracting information includes the steps of demodulating and decoding the transmitting mobile-appliance's signal.

8. (Previously Presented) The method of Claim 6, wherein the information in the transmitting mobile-appliance's signal comprises handoff assistance data.

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9. (Previously Presented) The method of Claim 5, wherein the signal sample comprises handoff assistance data.
10. (Previously Presented) The method of Claim 8 wherein the handoff assistance data comprises a received signal strength measured at the mobile appliance from at least one of the plural base stations in the selected set.
11. (Previously Presented) The method of Claim 1, further comprising the step of aborting the collection of test and measurement data if the system is tasked to locate a mobile appliance.
12. (Currently Amended) In a method of collecting test and measurement data from a wireless communication system having a plurality of base stations defining a signal coverage area for communication with a mobile-appliance, wherein the base stations communicate with the mobile-appliance on a forward link transmission and the mobile appliance communicates with the base station on a reverse link transmission, the improvement comprising collecting forward and reverse data with equipment installed at the base stations only, and extracting the reverse data from the transmitting mobile-appliance's signal wherein the extracting comprises demodulating and decoding a portion of the transmitting mobile-appliance's signal.
13. (Currently Amended) The method of claim 12, wherein the reverse link data and the forward link data are collected substantially simultaneously.
14. (Currently Amended) The method of claim 12, wherein the forward link data includes received signal strength from one or more neighboring base stations.
15. (Currently Amended) The method of claim 12, wherein the step of collecting forward and reverse data is accomplished during a process of geo-locating the mobile appliance.
16. (Canceled)

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17. (Canceled)

18. (Currently Amended) In a method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, the improvement wherein the test and measurement data is collected from transmissions between the mobile-appliance and the base stations during normal operation of the communication system and without adding any calling traffic to the network, and extracting reverse link data from a signal transmitted from the mobile-appliance wherein the extracting comprises demodulating and decoding a portion of the transmitting mobile-appliance's signal.

19. (Previously Presented) The method of claim 18, wherein the wireless communication system further comprises a geo-location system for locating a mobile appliance within the communication system and the test and measurement data is collected by the geo-location system.

20. (Currently Amended) In a method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, and having a mobile appliance location determining system overlay for determining the location of the mobile appliance in the coverage area, the improvement wherein the test and measurement data is collected by the location determining system wherein the location determining system collects the data during the process of locating the mobile appliance in response to a geolocation request, and wherein the location determining system aborts the collection of data when a geolocation request is received by the location determining system.

21. (Canceled)

22. (Canceled)

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23. (Canceled)

24. (Currently Amended) In a wireless communication system with a network overlay geo-location system for locating mobile appliances in communication with the wireless communication system, a method for system-initiated test and measurement data collection comprising the steps of:

selecting a probe area and tasking a probe geo-location sensor associated with the probe area to search for an active mobile appliance operating within the probe area;

selecting a probe mobile appliance from the probe area;

selecting other geo-location sensors proximate to the probe area to detect a signal from the probe mobile appliance;

measuring geo-location parameters and signal quality parameters of the probe mobile appliance signal at the probe geo-location sensor and at ones of the other geo-location sensors;

storing the measured signal quality parameters; and,

monitoring for receipt of a location request by the geo-location system and aborting the system-initiated test and measurement data collection after receipt of a location request by the geo-location system,

wherein the step of searching for an active mobile-appliance comprises the step of scanning frequency, time slot and code as a function of operating parameters of the wireless communication system.

25. (Previously Presented) The method of claim 24, wherein the geo-location parameters are selected from the group of TOA and AOA measurements.

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26. (Previously Presented) The method of claim 24, wherein the signal quality parameters are selected from the group of carrier signal to interference ratio, received signal strength, bit error rate, frame error rate, and signal to noise ratio.

27. (Previously Presented) The method of claim 24, further comprising the step of extracting handoff assistance information from the probe mobile appliance.

28. (Previously Presented) The method of claim 27, wherein the step of extracting includes the step of demodulating and decoding a portion of the probe mobile appliance signal, said portion determined by frequency of handoff assistance information.

29. (Canceled)

30. (Currently Amended) In a method of operating a geo-location system that geo-locates a mobile appliance in response to an external geo-location request where the mobile appliance is in communication with a wireless communication system including a network overlay geo-location system with plural base stations where each of the base stations serves at least one sector, the improvement comprising collecting test and measurement information with the geo-location system when the geo-location system is in an otherwise idle state wherein the collecting of test and measurement information is aborted when the geo-location system is no longer in the idle state and wherein the test and measurement information is collected on both forward and reverse communication links substantially simultaneously.

31. (Canceled)

32. (Canceled)

33. (Canceled)

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34. (Currently Amended) The method of Claim ~~33~~ 30 wherein the test and measurement information is collected on equipment installed only at ones of the plural base stations.

35. (Previously Presented) The method of Claim 30 wherein the test and measurement information is collected from plural sectors according to a predetermined schedule.

36. (Previously Presented) The method of claim 30 wherein the test and measurement information includes obtaining signal quality parameters for a probe mobile appliance.

37. (Previously Presented) The method of Claim 36 wherein the signal quality parameters are selected from the group of carrier signal to interference ratio, received signal strength, bit error rate, frame error rate, and signal to noise ratio.

38. (Previously Presented) The method of claim 36 further comprising the step of extracting handoff assistance information from the probe mobile appliance.

39. (Previously Presented) The method of claim 38 wherein the step of extracting includes the step of demodulating and decoding a portion of the signal from the probe mobile appliance wherein said portion is determined by frequency of handoff assistance information.

40. (Previously Presented) The method of claim 39 wherein the handoff assistance information includes received signal strength from ones of said plural base stations.

41. (New) In a method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, and having a mobile appliance location determining system overlay for determining the location of the mobile appliance in the coverage area, the improvement wherein the test and measurement data is collected by the location determining

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system wherein the location determining system collects the data only when the location determining system is in an otherwise idle state and wherein the location determining system aborts the collection of data when a geolocation request is received by the location determining system.

42. (New) In a method of operating a geo-location system that geo-locates a mobile appliance in response to an external geo-location request where the mobile appliance is in communication with a wireless communication system including a network overlay geo-location system with plural base stations where each of the base stations serves at least one sector, the improvement comprising collecting test and measurement information with the geo-location system when the geo-location system is in an otherwise idle state wherein the test and measurement information is collected without adding calling traffic to the wireless communication system and wherein the test and measurement information is collected on both forward and reverse communication links substantially simultaneously.

43. (New) The method of Claim 42 wherein the test and measurement information is collected on equipment installed only at ones of the plural base stations.

44. (New) The method of Claim 42 wherein the test and measurement information is collected from plural sectors according to a predetermined schedule.

45. (New) The method of claim 42 wherein the test and measurement information includes obtaining signal quality parameters for a probe mobile appliance.

46. (New) The method of Claim 45 wherein the signal quality parameters are selected from the group of carrier signal to interference ratio, received signal strength, bit error rate, frame error rate, and signal to noise ratio.

47. (New) The method of claim 45 further comprising the step of extracting handoff assistance information from the probe mobile appliance.

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48. (New) The method of claim 47 wherein the step of extracting includes the step of demodulating and decoding a portion of the signal from the probe mobile appliance wherein said portion is determined by frequency of handoff assistance information.

49. (New) The method of claim 48 wherein the handoff assistance information includes received signal strength from ones of said plural base stations.

Allowable Subject Matter

2. In view of the amended claims as discussed above in item 1, Claims 1, 3-15, 18-20, 24-28, 30, and 34-49 are allowed.

The following is an examiner's statement of reasons for allowance: 1, 3-15, 18-20, 24-28, 30, and 34-49.

With respect to claim 1, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising the steps of: (a) selecting one of the plural base stations to search for a transmitting mobile-appliance; (b) at the selected one of the plural base stations, searching for a transmitting mobile-appliance by scanning frequency, time slot and code as a function of a set of operating parameters of the wireless communication system; (c) once a transmitting mobile appliance is detected, determining if the quality of the signal reception from the transmitting mobile appliance is acceptable; (d) selecting a set of the plural base stations in the vicinity of the transmitting mobile-appliance; (e) at ones of the plural base stations in the selected set, measuring the signal received from the transmitting mobile-appliance; and, (f) storing the measured signal data.

With respect to claim 12, the prior art of record fails to disclose singly or in combination or render obvious that the method of collecting test and measurement data from a wireless communication system having a plurality of base stations defining a signal coverage area for communication with a mobile-appliance, wherein the base stations communicate with the mobile-appliance on a forward link transmission and the mobile appliance communicates with the base station on a reverse link transmission, the improvement comprising collecting forward and reverse data with equipment installed at

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the base stations only, and extracting the reverse data from the transmitting mobile-appliance's signal wherein the extracting comprises demodulating and decoding a portion of the transmitting mobile-appliance's signal.

With respect to claim 18, the prior art of record fails to disclose singly or in combination or render obvious that the method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, the improvement wherein the test and measurement data is collected from transmissions between the mobile-appliance and the base stations during normal operation of the communication system and without adding any calling traffic to the network, and extracting reverse link data from a signal transmitted from the mobile-appliance wherein the extracting comprises demodulating and decoding a portion of the transmitting mobile-appliance's signal.

With respect to claim 20, the prior art of record fails to disclose singly or in combination or render obvious that the method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, and having a mobile appliance location determining system overlay for determining the location of the mobile appliance in the coverage area, the improvement wherein the test and measurement data is collected by the location determining system wherein the location determining system collects the data during the process of locating the mobile appliance in response to a geolocation request, and wherein the location determining system aborts the collection of data when a geolocation request is received by the location determining system.

With respect to claim 24, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising the steps of: selecting a probe area and tasking a probe geo-location sensor associated with the probe area to search for an active mobile appliance operating within the probe area; selecting a probe mobile appliance from the probe area; selecting other geo-location sensors proximate to the probe area to detect a signal from the probe mobile appliance; measuring geo-location parameters and signal quality parameters of the probe mobile appliance signal at the probe geo-location sensor and at ones of the other geo-location sensors; storing the measured signal quality parameters;

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and, monitoring for receipt of a location request by the geo-location system and aborting the system-initiated test and measurement data collection after receipt of a location request by the geo-location system, wherein the step of searching for an active mobile-appliance comprises the step of scanning frequency, time slot and code as a function of operating parameters of the wireless communication system.

With respect to claim 30, the prior art of record fails to disclose singly or in combination or render obvious that the method of operating a geo-location system that geo-locates a mobile appliance in response to an external geo-location request where the mobile appliance is in communication with a wireless communication system including a network overlay geo-location system with plural base stations where each of the base stations serves at least one sector, the improvement comprising collecting test and measurement information with the geo-location system when the geo-location system is in an otherwise idle state wherein the collecting of test and measurement information is aborted when the geo-location system is no longer in the idle state and wherein the test and measurement information is collected on both forward and reverse communication links substantially simultaneously.

With respect to claim 41, the prior art of record fails to disclose singly or in combination or render obvious that the method of collecting test and measurement data in a wireless communication system having a plurality of base stations defining a signal coverage area for communicating with a mobile-appliance, and having a mobile appliance location determining system overlay for determining the location of the mobile appliance in the coverage area, the improvement wherein the test and measurement data is collected by the location determining system wherein the location determining system collects the data only when the location determining system is in an otherwise idle state and wherein the location determining system aborts the collection of data when a geolocation request is received by the location determining system.

With respect to claim 42, the prior art of record fails to disclose singly or in combination or render obvious that the method of operating a geo-location system that geo-locates a mobile appliance in response to an external geo-location request where the mobile appliance is in communication with a wireless communication system including a network overlay geo-location system with plural base stations

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where each of the base stations serves at least one sector, the improvement comprising collecting test and measurement information with the geo-location system when the geo-location system is in an otherwise idle state wherein the test and measurement information is collected without adding calling traffic to the wireless communication system and wherein the test and measurement information is collected on both forward and reverse communication links substantially simultaneously.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, Feild, Joseph can be reached @ (571) 272-4090. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kamran Afshar

**JEAN GELIN
PRIMARY EXAMINER**

